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Next 1 Page(s) In Document Denied

NEW FORGE HAMMERS

For precision forgings large bridge hammers with a 5-ton falling weight and welded in all major parts are made by VEB Schwermaschinenbau Heinrich Rau, Wildau (Koenigs Wusterhausen) (Fig. 1). Both columns are cylindrically rolled and electrically welded, the bridge consists of a sheet-iron housing in fully stress-free welded construction. Made of cast steel and cutting right through the bridge the two tup guides extend downward. They are fitted with cast-iron ledges and at the top firmly joined by a sturdy crosshead of cast steel which contains the cast-iron working cylinder. Despite its slender shape the cylinder is very soundly constructed and easily capable of withstanding a weight of blow ranging up to 10 atmospheres pressure. Working piston and piston rods are shrunk fit, with the latter additionally safeguarded through being flanged. The other rod end holding the tup is ball-shaped and, by means of wedge and guard-keys, secured to the tup thus creating a connection which is absolutely free from play.

Operation is by one-arm control lever arranged on the valve-box side approximately 960 mm. above ground. The lever-controlled operating rod for the valves consists of two parts, one of them being connected to the pressure lubricator and the other to a limit releasing device which fully eliminates any possibility of damage as might be caused by retarded braking of the reversing stroke. An additional safeguard is provided by strong conical springs fitted beneath the crosshead on either side of the piston rods. The hammer is equipped with a double-seat valve

control mechanism and the valves are regulated from above.

On account of its large weight the anvil block is composed of three separate parts, the 60-ton base, the 50-ton middle section, and the 10-ton guard plate.

Technical data:

falling weight	5 t
fall	1.600 mm.
number of strokes	80 per minute
working pressure	6 to 10 at.
forging height above ground	750 mm.
bridge clearance	
height	2 100 mm.
width	4.000 mm.
weight of hammer	40 t.
weight of anvil block	110 t.
total weight	150 t.

The single-frame forge hammer with 750 kg. tupping weight (Fig. 2) is steam- or air-operated and has a portable anvil block thus considerably reducing the strain on the hammer structure.

It is suitable for hammer or precision forging and fitted with a combined hand and automatic control.

The frame is mounted on a cast steel base-plate which is broken through by the anvil block carrying the anvil head with lower inset. These latter are secured by dovetail guides.

Fig. 1: Bridge Hammer 5 ton

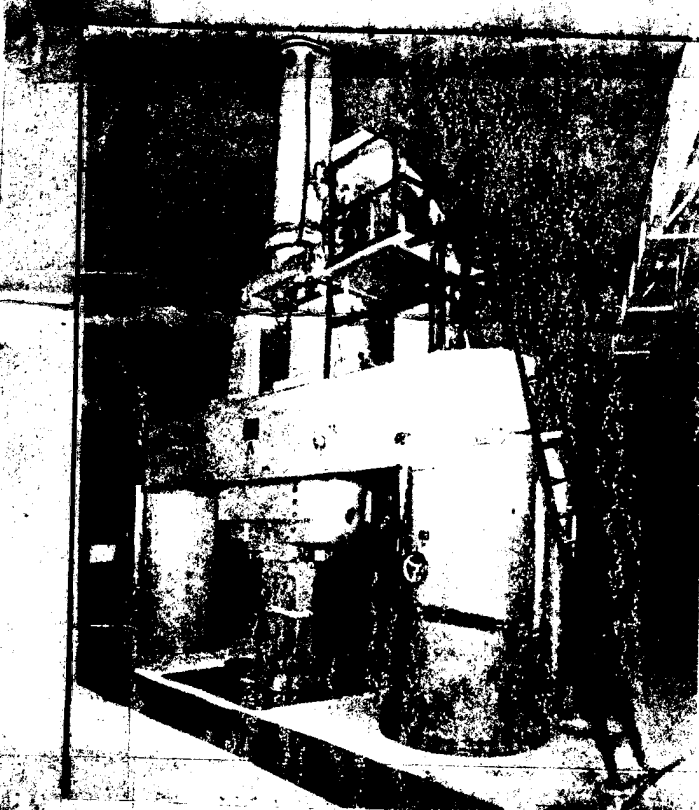


Fig. 2: Single-frame Hammer with 750 kg. Tuppung Weight

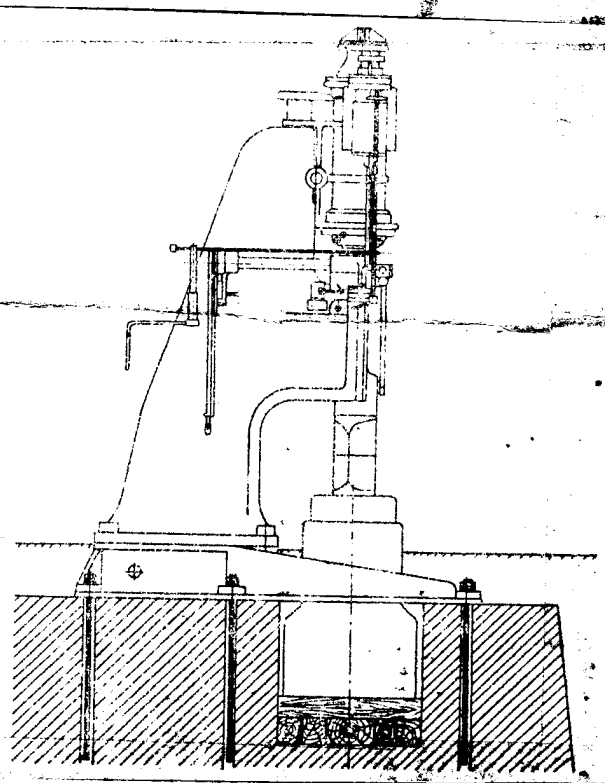




Fig. 3: Mounting a 10 meter-ton, Swaging Hammer.

Exchangeable Vee-guides for tup and working cylinder are fitted to the frame. The upper cylinder cap with built-in conical spring serving as stop-block to allow gentle braking of the piston in its upward movement.

Tup and piston together with piston rod are forged integral, with the upper inset joined to the tup in normal dovetail fashion. The valve box is attached sideways to the cylinder and contains in the upper cap the slide controlling the hammer between zero and maximum blow capacity.

With automatic control the impact force is very widely variable, while individual and setting blows can be effected by an additional control lever.

Technical data:

tupping weight	750 kg.
cylinder diameter	320 mm.
fall	800 mm.
working pressure	8 to 13 at.
forging height above ground	720 mm.
extension to tup centre	710 mm.
max. height above shop floor	3,965 mm.
strength of base-plate	400 mm.
weight of anvil block	15,000 kg.
total hammer weight	26,000 kg.

Designed as double-action drop hammers for the handling of larger size drop stampings the firm offer their swaging hammers type G 10 to G 40 (Fig. 3). Operation is with two tups executing simultaneous

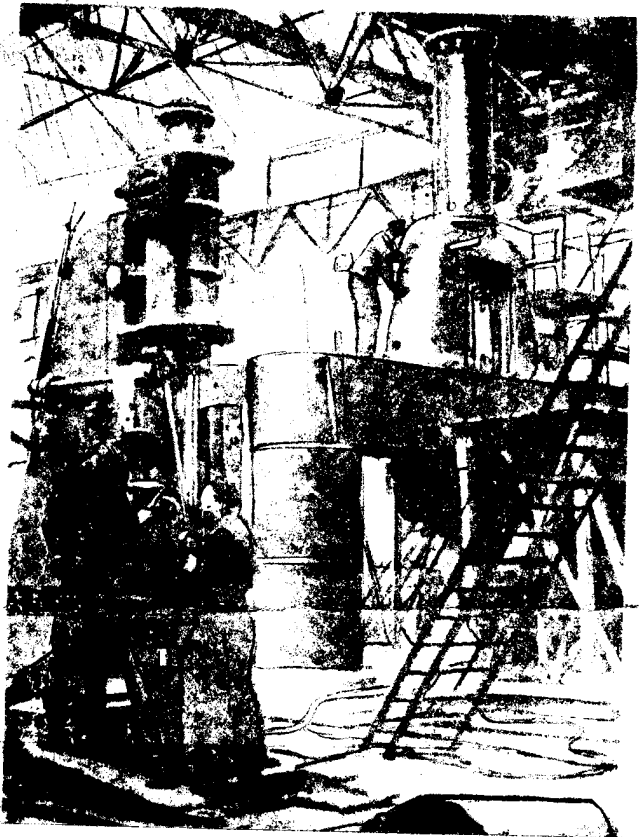


Fig. 4: Single-frame Hammer (foreground) and Bridge being mounted

counterblows at equal speed. With the elimination of the anvil block a much lower total weight is obtained which in turn affects favourably the hammer bed. Actually only 1/5th of the bed normally required for anvil-block types is needed for the swaging hammer, thus resulting in a notable lessening of vibrations which are such a troublesome feature of drop hammers and damaging to building parts exposed to them.

However the major advantage of the swaging hammer compared with anvil-block types is its greater economy, as anvil-block losses are ruled out even with heaviest blows. Power economy amounts to a maximum of 40%. At medium working pressure between 6 and 8 atmospheres absolute pressure these swaging hammers are suitable both for compressed-air and for steam drive:

Technical data:

Type	G 10	G 20	G 32	G 40
specific energy of blow	mkg. 10,000	20,000	32,000	40,000
fall of one tup	mm. 500	600	670	710
clearance between guides	mm. 750	940	1,080	1,180
max. width	mm. 3,600	3,870	4,400	4,500
max. depth	mm. 3,300	3,200	4,100	4,200
height approx.	mm. 5,600	7,385	8,520	8,520
height above floor approx.	mm. 4,000	5,550	6,300	6,300
hammer weight approx. t.	75	115	220	240

Export: by WMW-Export, Berlin W 8, Mohrenstrasse 61.